

SUPPORT FOR THE AMENDMENTS

Claim 1 is amended to include description from Claim 7.

Claims 4, 6 and 7 are herein canceled.

Claims 3, 5 and 9-11 are amended to use wording and structure consistent with U.S. patent law practice.

Claim 8 is canceled.

No new matter will be added to this application by entry of this amendment.

Claims 1-3, 5, 9-11 and 14-21 are active.

REMARKS/ARGUMENTS

The claimed invention provides cyan, yellow and magenta recording inks comprising: water, a wetting agent comprising 3-methyl-1,3-butanediol, a surfactant represented by Formula (I) as shown in Claim 1, and a colorant which is an aqueous dispersion of polymer fine particles containing a colorant. No such cyan, yellow or magenta inks are disclosed or suggested in the cited reference.

The rejection of Claims 1, 4-10, 14-15, 18-19 and 21 under 35 U.S.C. 103(a) over Namba et al. (U.S. 2005/0054751) in view of Ishibashi et al. (U.S. 2004/0003754) and Nagashima et al. (U.S. 2005/0170989) is respectfully traversed.

Namba describes an ink composition comprising a polymer emulsion of polymer fine particles containing coloring material, a first hydroxy compound, a second hydroxyl compound having 8 to 11 carbon atoms, a glycol ether having 8 to 11 carbon atoms, a water soluble organic solvent, at least one surfactant and at least one fluorine surfactant. A very large group of surfactant structures is described in this reference [0143-0166]. Nowhere does Namba disclose an ink composition containing 3-methyl-1,3-butanediol and the surfactant

represented by Formula (I) according to the presently claimed invention and nowhere is there a disclosure or suggestion that color saturation would be improved in an ink composition as according to the presently claimed invention.

Regarding the ink composition described, Namba states [0103]:

Furthermore, the present inventors have found out the following.  
Using in combination a **specific hydroxyl compound having a specific structure** can obtain a print image that is excellent in ejection reliability, has proper penetration, is especially excellent in dryness, and excellent in character feathering and color bleeding, and a print image that is capable of making a more remarkable chroma improvement when the fluorine surfactant is combined with the remaining **specific-structure surfactant** . .  
(Bold added)

Applicants respectfully submit that as described above, Namba clearly requires a specific structural formula character for the wetting agent. This requirement is further described in [0107] as:

A fourth feature of the present invention is that a high-viscosity wetting agent is used which is a mixture of glycerin with at least one high-viscosity wetting agent selected from the group consisting of glycerin, 3-butanediol, triethylene glycol, 1,6-hexanediol, propylene glycol, 1,5-pentanediol, diethylene glycol, dipropylene glycol, trimethylol propane, and trimethylol ethane, instead of a low-viscosity wetting agent . . .

Applicants respectfully submit and the Office acknowledges (Official Action dated January 15, 2009, page 6, lines 12-13) that Namba does not disclose or suggest 3-methyl-1,3-butanediol as a component of the wetting agent. Ishibashi is cited to show a wetting agent containing 3-methyl-1,3-butanediol.

Ishibashi describes an ink jet ink containing water, a water-soluble organic solvent and a **water soluble anthrapyridone dye**. Paragraph [0035] states:

“As a result of diligent investigation, the inventors of the present invention found that in an ink-jet ink comprising a water-soluble dye, using water and water-soluble solvents, the water soluble dye containing a compound represented by Formula (1) exhibited superiority in color image stability in ambient light.”

The Office alleges that (Official Action dated January 15, 2009, page 7, lines 1-3):

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink composition of Namba et al. by the aforementioned teaching of Ishibashi et al. in order to have the bleed free high quality printed image.

Ishibashi describes surface active agents in general [0112] but nowhere does this reference describe or suggest a surfactant according to Formula (I) as described in Claim 1 of the present invention. Moreover, Applicants respectfully submit that nowhere does this reference suggest or provide motivation which would have led one of ordinary skill in the art, at the time of the present invention, to have combined the surfactant according to Formula (I) with 3-methyl-1,3-butanediol in a recording ink composition and to have expected the improvement in color saturation obtained with the present invention.

Nagashima is cited to show the perfluoro surfactant according to Formula (I). This reference only discloses surfactant structures and nowhere suggests the improved performance obtained according to the presently claimed invention.

To further show the significant improvement in color saturation obtained according to the claimed invention Applicants submit a Declaration under 37 C.F.R. §1.132 providing further data showing such significant improvement. Applicants have described in Example 19 of Table 3 of the specification significant increase in color saturation of all color hues are obtained according to the claimed ink composition in comparison to conventional inks according to Comparative examples 10-13.

The experimental data provided in the Declaration describes inks prepared in the same manner as Example 19, with the difference that Example A, which is representative of the presently claimed invention was prepared using the surfactant FSO-100 which is represented by Formula (I) where m is 0-10 and n is 1-25. The ink of Comparative Example A was also made in the same manner as Example 19, with the exception that the surfactant used was FT-

110, an anionic surfactant not of Formula (I), as described in the Declaration. The color values for Examples 19, A, and Comparative Example A are shown in the following Table.

	Yellow	Magenta	Cyan	Red	Green	Blue
Example 19	82.09	61.88	51.67	55.92	44.98	38.96
A	81.00	61.44	50.58	55.74	44.34	37.82
Comp. A	78.92	59.92	49.69	54.22	42.16	35.78

Applicants note that Surfactant FT-110 is the surfactant described by Namba in Examples 1-11 and therefore represents the closest description provided by the cited references.

As indicated by the values in the Table, Examples 19 and A, both having the formulation according to the claimed invention have significantly higher color saturation than the comparative example which does not have the claimed composition.

Nowhere does any of the cited references disclose or suggest such significant improvement in color saturation for inks containing 3-methyl-1,3-butanediol and the surfactant having the structure represented by Formula (I) as obtained according to the claimed invention.

In view of the above, Applicants respectfully submit that the cited combination of references can neither anticipate nor render obvious the claimed invention. Accordingly, withdrawal of the rejection of Claims 1, 4-10, 14-15, 18-19 and 21 under 35 U.S.C. 103(a) over Namba in view of Ishibashi and Nagashima is respectfully requested.

The rejection of Claims 2-3, 11, 16-17 and 20 under 35 U.S.C. 103(a) over Namba in view of Takashi (JP 11-323221) is respectfully traversed.

Takashi describes an aqueous ink containing a black pigment which is a **self-dispersion type carbon black**. To prepare such a self-dispersion carbon black, pigment carbon black is surface treated with various agents which react with the pigment to chemically attach a hydrophilic group to the pigment surface.

In contrast, the presently claimed invention describes cyan, yellow or magenta inks containing colorant that is **an aqueous dispersion of polymer fine particles** comprising a water-insoluble colorant.

Applicants note that Namba does describe a black ink comprising a self dispersion type pigment [0184] and that the wetting agent specified by the reference is one selected from the group consisting of glycerin, 3-butanediol, triethylene glycol, 1,6-hexanediol, propylene glycol, 1,5-pentanediol, diethylene glycol, dipropylene glycol, trimethylol propane, and trimethylol ethane. As previously shown Namba requires the wetting agent to be one of these specific structures.

Moreover, Applicants respectfully submit that the cited combination of references does not disclose nor suggest the significant improvement in color saturation obtained according to the claimed invention. Furthermore, neither reference nor the references combined provide any motivation which would have led one of ordinary skill in the art, at the time of the present invention to expect the significant improvement obtained according to the present invention.

The Office has alleged (Official Action dated January 15, 2009, page 8, lines 17-19) that:

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink composition of [Ishibashi] Namba by the aforementioned teaching of Takashi in order to have the high quality printed image.

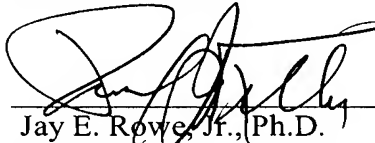
However, Applicants respectfully submit that the Office has not explained why one of ordinary skill in the art, at the time of the invention, would have replaced one of the specifically identified wetting agents of Namba with one different one from Takashi and combined the wetting agent with the specific surfactant represented by Formula (I). Moreover, Takashi is directed to a black ink based on a self-dispersing type carbon black. Therefore, even if one were to substitute a component from Takashi into the Namba black ink, the claimed invention would not be obtained.

Accordingly, Applicants respectfully submit that the described deficiency of the primary reference cannot be cured by Takashi and therefore, the cited combination of references can neither anticipate nor render obvious the claimed invention. Withdrawal of the rejection of Claims 2-3, 11, 16-17 and 20 under 35 U.S.C. 103(a) over Namba in view of Takashi is respectfully requested.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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